

Strategies to Address Shortages in the Health Professions

January 2008

Prepared for

The Michigan Center for the Health Professions
Okemos, Michigan

Prepared by

Public Sector Consultants Inc.
Lansing, Michigan
www.pscinc.com

Contents

INTRODUCTION	1
BRINGING PEOPLE INTO THE HEALTH PROFESSIONS	3
EARLY- AND MIDDLE-COLLEGE HIGH SCHOOLS	3
<i>Example in Practice: Genesee Health Careers Middle College</i>	<i>4</i>
<i>Example in Practice: Wake Early College of Health and Sciences.....</i>	<i>5</i>
Challenges	5
Opportunities	6
TRAINING FOR DISPLACED WORKERS	7
<i>Example in Practice: Henry Ford Health System and Oakland University</i>	<i>7</i>
<i>Example in Practice: Project HEALTH in North Carolina.....</i>	<i>8</i>
Challenges	9
Opportunities	9
EXPANDING TRAINING CAPACITY	10
ADDRESSING FACULTY SHORTAGES.....	10
<i>Financial Support for Students</i>	<i>11</i>
<i>Non-economic Incentives.....</i>	<i>12</i>
<i>Mentoring and Role Modeling.....</i>	<i>13</i>
<i>Partnerships between Universities and Health Care Institutions.....</i>	<i>14</i>
CENTRALIZED CLINICAL PLACEMENT	15
<i>Example in Practice: Oregon StudentMAX Connection.....</i>	<i>16</i>
<i>Example in Practice: Alliance for Clinical Education Systems Clinical Placement (ACE-PLACE) in Southeast Michigan.....</i>	<i>18</i>
<i>Example in Practice: Clinical Placement Consortium in West Michigan.....</i>	<i>18</i>
<i>Example in Practice: East Central Michigan Regional Skills Alliance for Health Care</i>	<i>19</i>
STANDARDIZED CLINICAL PLACEMENT REQUIREMENTS	20
<i>Example in Practice: Tennessee Clinical Placement System</i>	<i>20</i>
<i>Example in Practice: Alliance for Clinical Education Systems Clinical Passport (ACE-PASS) in Southeast Michigan</i>	<i>21</i>
DEDICATED EDUCATION UNITS	22
<i>Example in Practice: University of Portland School of Nursing.....</i>	<i>22</i>
CLINICAL SIMULATION IN TRAINING	23
<i>Example in Practice: Georgetown University School of Nursing and Health Studies Nurse Anesthesia Program.....</i>	<i>25</i>
ASSESSING REGIONAL HEALTH WORKFORCE SUPPLY AND DEMAND	27
<i>Example in Practice: Michigan Health and Hospital Association.....</i>	<i>27</i>
<i>Example in Practice: North Central Council of the Michigan Health and Hospital Association.....</i>	<i>28</i>
<i>Example in Practice: Southeast Michigan Demand Study</i>	<i>28</i>
<i>Example in Practice: Fox Valley Health Care Alliance</i>	<i>28</i>
<i>Example in Practice: Michigan Center for Nursing Surveys of Licensed Nurses</i>	<i>29</i>
CONCLUSION.....	30

Introduction

There are current and projected shortages in many health professions, from nursing to pharmacy to lab technology.¹ Factors that contribute to these shortages are varied and complex. Some of the contributing factors include the state of the economy; decreased interest and enrollment in the health professions during the 1990s; limited capacity in the education system to increase supply quickly; the aging of the general population and the health professional workforce; and technological advancements that contribute to the demand for services and, thus, for workers.²

The economy has a strong effect on the supply of the health care workforce, especially nursing and other professions dominated by women. In a strong economy, opportunities for work are plentiful in a variety of fields. Individuals who might have entered the health workforce may, instead, go into other professions in search of a more lucrative salary. A strong economy may induce some health care professionals to cut back their work hours or leave the workforce completely. Health workforce shortages see some relief when the economy is not as flush, as in recent years. When money is tight, persons who previously left the workforce or reduced their hours may come back or increase their hours to supplement (or replace) their own or their spouse's income. Knowledge that the health care workforce is in need of workers when many other employers are reducing their payroll leads others to enter the field as a promising source of income.

Certain health professional education programs, including those for physician assistants and dental hygienists, have awarded growing numbers of degrees over the past decade. However, during the 1990s, many health professional schools experienced declining enrollment.³ The number of degrees awarded for physical therapy, occupational therapy, respiratory therapy, and radiologic technology all decreased from 1994 to 2004. Registered nurse degrees awarded also declined between the mid-1990s and early twenty-first century. However, each of these fields experienced an increase in enrollment near the end of the period, influenced by a sluggish economy and highly publicized shortages and increasing salaries in the health professions.

Responding to shortages in the health care workforce takes time. Schools cannot increase capacity quickly, especially when it is difficult to recruit faculty to teach in the health professions and additional clinical training sites are hard to find. Moreover, expanding program capacity almost always requires the approval of state and/or national certifying or oversight boards, which have stringent standards to guarantee quality. Once these factors have all been addressed—no small task!—students must enroll in the program, complete their education, and graduate. This process can take several years.

The aging of the general population is having an impact on the supply and demand for health care services. Older adults (those aged 65 and older) use more health care than

¹ Edward Salsberg, *Making Sense of the System: How States Can Use Health Workforce Policies to Increase Access and Improve Quality of Care* (New York: Millbank Memorial Fund, 2003).

² Ibid.

³ *The United States Health Workforce Profile* (New York: The New York Center for Health Workforce Studies, October 2006).

younger populations. The population of adults aged 65 and older is projected to double between 2000 and 2030. Medical and technological advances in the last half-century have led to longer life spans, and the population of adults aged 85 and older is expected to more than double between 2000 and 2030. This will lead to a potentially dramatic increase in the demand for health care services in the next 20 years.

At the same time, the current health care workforce is aging. The average age of nurses in 2004 was 46.8. Two-fifths were aged 50 and older. This leads to two problems. First, the current workforce is nearing retirement, which means that the need for new and replacement workers is imminent. As current health professionals retire, both new and replacement workers will be needed to meet the increased demand for health care. Second, the physical demands of some health care jobs, such as nursing, may make it difficult for older workers to continue to work in their current capacity. Their skills may be valuable in an administrative or teaching capacity, but more direct caregivers will still be needed.

While some technological advances may lead to increased efficiency and productivity, many more lead to the need for a more highly trained and specialized workforce, which exacerbates the difficulty of bringing new people into the health workforce with any speed. As mentioned above, technological and other medical advances also increase the life span of many older adults. As people are able to live longer with chronic conditions, their demand for health care will increase.

Addressing health workforce shortages will require strategies that are as varied as the contributing factors. This report addresses focus areas across the health professions, identifying innovations in one or more professions that might be applied in other professions to address shortages. It explores ways to bring new people into health careers and to increase the capacity to train new health professionals. This paper also examines efforts undertaken by regions within states to foster purposeful recruitment and expansion of training capacity by assessing the supply of and demand for health professionals locally.

The Michigan Center for Health Professions provides a central forum for exploring and addressing needs and issues that affect the supply and career development of health professionals. The center commissioned this report as part of its objectives to foster collaboration among key stakeholders and communicate health workforce information to them to assist in formulating strategies to increase the supply of health professionals in Michigan. The Center for Health Professions Advisory Group selected the focus areas and strategies that are addressed in the report based on the group's sense of the most pressing issues and promising approaches.

Bringing People into the Health Professions

Efforts are under way to entice more people into health careers to meet the growing demand for health care services. Two attempts to do so include the formation of early- and middle-college high schools with an emphasis on careers in health care, and the creation of accelerated training programs for displaced workers.

EARLY- AND MIDDLE-COLLEGE HIGH SCHOOLS

Middle colleges and early colleges are formed through joint agreements between high schools and institutions of higher education, whereby students take both high school and college-level courses on a college campus.

Middle colleges generally enroll students in 10th or 11th grade and offer rigorous course work on a college campus with high levels of individualized support for students. Students do not necessarily earn college credit for these courses, however. Early colleges are actually an outgrowth of the middle college concept. Early colleges integrate all of the high school years and two years of college into a single five-year program, allowing students to graduate with an associate's degree or two years of transferable college credit. A major advantage to early colleges is the tuition-free college credit students can earn, which significantly reduces the cost of a four-year degree.

Middle colleges and early colleges reach students with a broad variety of backgrounds, but each type of school was originally developed with the express purpose of boosting high school graduation and college attendance rates among disadvantaged students. The Early College High School Initiative, sponsored primarily by the Bill & Melinda Gates Foundation, has an explicit focus on reaching low-income African American and Hispanic students, whose high school graduation and college entry rates are typically far lower than those of white students.

Since the advent of the early college initiative, many middle colleges have changed their structure to match that of early colleges, while keeping the "middle college" name. Thus, the two types of schools are generally spoken of interchangeably.

The Middle College National Consortium offers the following list of common characteristics of middle and early colleges.⁴

- Formal collaboration between the high school and the college that is demonstrated by:
 - Location on a college campus
 - Inclusion in the organizational structure of the college
 - Integration into the college, with faculty and students sharing educational resources
 - Coordination of college and high school schedules and calendars
- Authorization to grant a high school diploma

⁴ *Shared Characteristics of Middle College High Schools, Middle College National Consortium* (Online, accessed 4/3/07; available: www.lagcc.cuny.edu/mcnc/downloads/MCNC_Shared_Characteristics.pdf).

- Small school but large enough to sustain its own unique classes and programs
- Heterogeneous grouping of students
- Implementation of collaborative, project-centered, interdisciplinary curricula
- Expanded teacher role in school governance (teachers work in instructional teams, create program designs, develop curricula, and select classroom materials)
- Expectation that teachers are teacher/counselors within a structured system of support for students
- Ongoing professional development (meeting time for small, professional teacher groups is built into the school's schedule and occurs daily or weekly)
- Student outcomes measured by multiple assessments including performance-based assessments
- Empowerment of students through formal leadership roles in school governance, in guidance programs such as peer counseling, and in academic support services such as peer tutoring
- Career education or community service as part of graduation requirement

Early and middle colleges were not initially intended to address health care work force issues, but the design lends itself to the purpose and a few existing early and middle colleges have set out to bring more students into health careers. More early and middle colleges are under development—several in Michigan—with the express purpose of attracting students to health careers.

Example in Practice: Genesee Health Careers Middle College⁵

Genesee Health Careers Middle College (GMC), operated by the Genesee Intermediate School District (GISD) and housed on the campus of the University of Michigan–Flint, is one of six early and middle colleges focusing on health careers currently under development in Michigan. The other five schools are Bay Middle College in Escanaba; Clare-Gladwin Middle College in Harrison; Detroit Allied Health Middle College High School; Early College Alliance in Ypsilanti; and Henry Ford Early College in Dearborn. GMC, like the other five schools, hosted its first class of students in fall 2007. GMC is a partnership between GISD, the University of Michigan–Flint, and six health care organizations in Genesee County: Genesys Regional Medical Center, the Greater Flint Health Coalition, Hamilton Community Health Network, Hurley Medical Center, McLaren Regional Medical Center, and Mott Children's Health Center.

GMC is a five-year program, enrolling students in grades 9 through 13. Classes are held on the University of Michigan–Flint campus. High school courses will be held in one building and, once proficiency in specific areas is demonstrated (usually in grade 11), students will enroll in college courses at the university for dual high school and college credit. Students must also complete clinical and experiential rotations with a participating health care partner. Students who complete the program will graduate with a high school degree and up to 60 transferable credits toward an undergraduate degree in health sciences.

⁵ Genesee Middle College at the University of Michigan–Flint planning update (Online, accessed 8/1/07; available: <http://www.geneseeearlycollege.org>).

Although Genesee Health Careers Middle College is not a member of the Middle College National Consortium, its design is based on many of the principles put forth by the consortium.

Example in Practice: Wake Early College of Health and Sciences⁶

Wake Early College of Health and Sciences (WECHS) is a magnet school located on the campus of Wake Technical Community College in Raleigh, North Carolina. The school is a partnership between the Wake County Public School System, Wake Technical Community College, and WakeMed Health & Hospitals.

WECHS opened its doors in fall of 2006 and had 100 students during the 2006–2007 school year. In keeping with the typical early college design, the school plans to expand enrollment to only 400 total students. This facilitates the WECHS plan for “all students [to] be known well by at least one member of the Wake Early College of Health and Sciences staff.” The small cohort size also allows for individualized tutoring, career counseling, and educational advising.

Students, who must enroll in WECHS in the 9th grade, can graduate with an associate of arts (AA), associate of science (AS), or associate of applied sciences (AAS) degree after five years. College credits earned while a student is enrolled in the early college are tuition free and may be transferable to a four-year institution. Applying for enrollment in WECHS only involves a desire to enter a health career and a magnet school application. No special tests are required.

Challenges

School districts and higher education institutions trying to establish early colleges may face several challenges. The Early College High School Initiative report, *Integrating Grades 9 through 14*, discusses some of the policy barriers associated with the development of early colleges.⁷ These include issues with dual enrollment and dual credit, eligibility for college courses, credit transferability, teacher certification, funding, and autonomy.

Courses completed in early colleges can be applied toward both high school and college credit; however, some states have policies in place that restrict the use of college courses to fulfill requirements for high school graduation. Others limit the number of college-level courses a high school student can take.

The rubric for admission into early-college high schools includes, but is not limited to, academic readiness. State policies, however, can restrict access to courses that require dual enrollment based on academic standards (e.g., grade point average or assessment test scores) alone, or policies may be in place that prevent students below a certain grade level from taking college-level courses.

⁶ Wake Early College of Health and Sciences FAQ Sheet (Online, accessed 8/1/07: available: <http://healthscienceec.wcpss.net>).

⁷ Nancy Hoffman and Joel Vargas, *Integrating Grades 9 Through 14: State Policies to Support and Sustain Early College High Schools* (Boston: Early College High School Initiative, January 2005).

An important element of early-college high schools is the granting of transferable college credit. Policy barriers that may stand in the way of this include not having a system for equating courses across higher education institutions, or a university creating a unique set of course prerequisites that can only be fulfilled at that institution.

In early-college high schools, high school teachers are able to teach college-level, credit-bearing courses. Likewise, college faculty can teach high school courses in these schools. Some high school teachers may not meet hiring criteria to become adjunct college professors, and restrictive state policies or union regulations may prevent college instructors from teaching high school students.

Funding early-college high schools can be particularly difficult. Generally, these schools are supported through a blended funding stream that includes high school per-pupil allocations, postsecondary per-credit allocations, and state financial aid. Some common policy barriers to funding might include lack of full-time equivalent (FTE) reimbursement for dual enrollees at four-year public colleges, ineligibility of high school students for federal and state financial aid, or lack of flexibility in funding rules to pay for per-credit costs of cohorts of students. In addition, high schools lose money when students leave, which might discourage them from participating in dual enrollment with the college.

Early college high schools have the autonomy to make decisions that enable students to achieve six years of schooling in five years and to integrate high school and college education. Some states, however, exercise considerable control over local school districts, limiting the autonomy of early-college high schools.

A further challenge lies in developing the necessary relationships to support the schools. Early and middle colleges must be formed on the basis of strong partnerships between public school systems and institutions of higher education. Early colleges with a health career focus have the additional challenge of developing partnerships with health systems.

Opportunities

As noted above, these challenges are already being overcome in several Michigan locations. As stated above, six health care-focused early- and middle-colleges, including Genesee Health Careers Middle College, opened for enrollment in fall 2007. The startup money to form these schools came from a \$2 million grant from the Michigan Department of Education. Money was distributed to the Detroit Public Schools and intermediate school districts representing Genesee, Wayne, Washtenaw, Clare and Gladwin, and Delta and Schoolcraft Counties.

In addition, support for early and middle colleges in Michigan is coming from high places. Governor Granholm included additional funding for the six schools mentioned above—and funding for five or six additional early colleges—in her proposed 2008 budget.⁸ In addition, Michigan Superintendent of Public Instruction Mike Flanagan is

⁸ Middle colleges' would help cut dropouts, *Detroit News*, February 26, 2007.

proposing that the state support the creation of 100 new middle colleges.⁹ Superintendent Flanagan's support for these schools stems from his belief that they have significant potential statewide for cutting the high school dropout rate and increasing the number of students who go to college. This belief is supported by information from Washtenaw Technical Middle College (WTMC) in Ann Arbor, which began in 1997.

WTMC is located on the campus of Washtenaw Community College (WCC) and accepts students, who jointly enroll as full-time students at WCC, in the 10th grade. WTMC students graduate with a high school diploma and a certificate or associate's degree from WCC after four years in the program. The school's dean reports that 80 to 85 percent of students who enroll in WTMC complete the program.¹⁰ WTMC also recently completed a five-year study of its first graduating class and found that 71 percent had already gone on to earn a bachelor's degree and 29 percent were still working toward one.

TRAINING FOR DISPLACED WORKERS

Many states are exploring ways to provide accelerated health career training programs for people who have been laid off from jobs in other industries, seeing a potential match between these workers in need of employment and the plentiful job opportunities in health care. The demographics of the displaced workers might even help diversify health care professions that lack diversity. For example, many displaced auto workers are men, and the predominantly female nursing profession has begun to actively recruit men to the field.

Example in Practice: Henry Ford Health System and Oakland University¹¹

Henry Ford Health System (HFHS) and Oakland University have partnered to offer training in nursing to auto workers displaced by recent downsizing by Ford, General Motors, and Daimler/Chrysler. Interested individuals must complete a set of prerequisite courses before they can apply for admission into the two-year nursing program. The year-round Displaced Auto Workers in Nursing (DAWN) program includes classroom work at Henry Ford Hospital in Detroit and clinical training at one of three Henry Ford Hospital locations: Henry Ford Hospital in Detroit, Henry Ford Wyandotte Hospital in Wyandotte, or Henry Ford Bi-County Hospital in Warren. Depending on a student's prior education, a nursing degree could be achieved in as little as three years. To date, approximately 65 persons have submitted applications for admission to the program. The first cohort of students will begin the program in May of 2008. HFHS expects to have a job available for every student who completes the program and passes the registered nurse licensure exam.

⁹ Add more middle colleges to boost graduation rates, *Detroit News*, April 8, 2007.

¹⁰ Telephone conversation with Lee Schleicher, dean of the Washtenaw Technical Middle College, June 28, 2007.

¹¹ Henry Ford Health System opens nursing program to all displaced auto workers, *Michigan Chronicle Online*, March 8, 2007 (Online, accessed 3/12/07; available: www.michronicleonline.com). Information was also obtained from telephone conversations with Pamela Marin and Tom Schumann at Oakland University.

Example in Practice: Project HEALTH in North Carolina¹²

North Carolina's Commission on Workforce Development received a \$1.5 million federal grant in 2004 to fund Project HEALTH (Helping Employers and Labor Transition to Health Care). The commission used the grant to develop innovative training approaches with the large and diverse pool of workers who have been displaced due to layoffs and business closings.

The commission contracted with three community colleges in the state to implement training programs to help transition displaced workers into health care professions. Workers were recruited into the training programs by "rapid response teams," who provided presentations on potential career options to employees when a plant closure had been announced.

Five levels of service were available to displaced workers. ***Core services*** involved a 12-hour course designed to "assess an individual's interests, attitudes, and readiness related to educational and/or employment goals" with a focus on exploring careers in the health care field. Students who were interested in exploring health careers further and who were deemed ready for additional education and employment training received ***intensive services***, which included a comprehensive assessment of their current skills and abilities, and worked with community college advisors to develop a plan to obtain the skills and education necessary to transition into a health care career if appropriate.

Students who developed an education plan were then offered a set of ***training services*** including career counseling, tutoring, job shadowing, and on-the-job training. These services were coordinated by case workers who helped keep students on track to achieve education and career goals. Case workers also helped students access financial aid to help pay for tuition, fees, books, transportation, childcare, and other expenses if necessary.¹³

Employment services were available to all Project HEALTH participants. The three community colleges offering the program worked with local career centers to provide job search assistance to enrollees. Project HEALTH staff spent time ***tracking and following up*** with project participants who had completed training and/or obtained employment to see if they could offer any further training or job search assistance. Project HEALTH staff also contacted participants who had discontinued training for any reason to encourage them to reenroll.

Of the more than 600 students who enrolled in Project HEALTH, nearly 190 became employed in health care jobs. However, anecdotal evidence suggests that many of the workers who had previously been employed in factories earning \$25 to \$30 an hour were now earning only \$8–\$10 an hour in entry-level health care positions.¹⁴ Also, a key to the success of the program was having financial aid available for enrollees. Once the grant

¹² Project HEALTH Final Report (Raleigh, N.C.: North Carolina Community College System and Economic and Workforce Development Division, January 2007).

¹³ Evidence exists to support the use of case workers or similar positions to reduce attrition among students in the health professions. For example, during the 2005-2006 academic year, Elgin Community College in Illinois established a retention specialist position to help nursing students access support services and achieved a 95 percent retention rate among students participating in the program.

¹⁴ Telephone conversation with Diane Steinbeiser, Project HEALTH director.

period ended in 2006, much of the funding that had been available to support students was gone.

Challenges

A primary challenge for these types of programs is to assure a match between the interests and capabilities of the displaced workers and the skills required for the jobs in health care. The skills that the workers have accrued over the years are not necessarily transferable to careers in health care. Another challenge is making accelerated programs affordable for the unemployed. The programs tend to be year-round and students are discouraged from working while going to school. This limits income considerably during the program (from one to three years) and leads to significant student loan debt, which future earnings may or may not sufficiently offset. Finally, if displaced workers do enroll in and complete an accelerated program for entering a career in health care, a challenge may lie in convincing employers to hire these (often times) older workers. If younger workers are available to fill open positions, hospitals and other health care employers may prefer to hire these younger workers, who are apt to have a longer career span in front of them and also tend to demand lower wages as they are starting their careers.

Opportunities

To recruit displaced workers into the health care field, health care institutions and health professional education programs will need to reach out to them as layoffs are announced; promote the benefits of health care employment; and share opportunities for accelerated training and financial support. These workers should not only be recruited for clinical positions in health care; their skills and interest may also be suited for positions in an administrative capacity such as billing, transcription, and information technology.

Expanding Training Capacity

One barrier to increasing the number of graduates from health professional education programs is limited capacity to accept and train new students. Factors that limit training capacity include faculty shortages, limited availability of clinical placement slots, lack of coordination of clinical placement opportunities, and lack of a uniform standard for clinical placement requirements.

ADDRESSING FACULTY SHORTAGES

Faculty shortages exist across the health professions—in nursing, dentistry, pharmacy, and in many other health professions.¹⁵ The issue of faculty shortages in health education programs is one of the single most important factors affecting the supply of health professionals. Without enough educators to train new health care workers, the number of people who can begin careers in health care is severely limited. The aging of faculty compounds the problem. With more faculty nearing retirement the need to recruit new and younger individuals into faculty positions increases.

Some of the reported factors contributing to faculty shortages include inequities between academic and clinical salaries; limited promotion of careers in academia; low morale and job satisfaction; and lack of opportunities to continue clinical practice in academia.¹⁶

For a number of health professions, including nursing, dentistry, and pharmacy, careers in academia pay far less than careers in clinical practice. This both contributes to, and is caused by, shortages in clinical practice. Attractive salaries are offered to entice new clinical professionals into the field where shortages exist, which lures recent graduates away from academia. And, since this strategy works, there are fewer students obtaining master's degrees and doctorates and entering academia, thus limiting the ability of education institutions to increase the supply of health professionals prepared for clinical practice. Pay is a significant issue for persons entering the health professions, since nurses, dentists, and pharmacists, among others, can accrue a significant amount of student debt. They may look to higher clinical practice salaries to help pay off that debt.

Another issue is that many students do not even consider academic careers. Most presumably attend school in the health professions to enter clinical practice, not to teach. This is an issue that many schools are struggling with and, unable to match clinical salaries, are finding ways to encourage students to, at least, *consider* teaching.

Low job satisfaction has been found to contribute to current faculty members' decisions to leave academia for other work. Pressure to contribute independent research and lack of a sense of connection with the mission of the university are two such morale-busting issues. Some schools have begun to recognize the value of investing in current faculty members and offering non-economic incentives to encourage faculty to continue in their current position or to consider advancement within the school. Other schools and health

¹⁵ Faculty Shortages Across the Health Professions: Implications for Teaching and Workforce, *Proceedings of the 9th Congress of Health Professions Educators* (Washington, D.C.: June 2002).

¹⁶ Ibid.

care institutions are partnering to offer opportunities for faculty members to teach and practice clinically by hiring individuals for a joint position.

Attempts to address these issues are described in greater detail in the following sections.

Financial Support for Students

As noted above, academic salaries have lagged behind clinical salaries, which some believe prevents students from seeking employment in the academic setting. Loan forgiveness programs are being used by some universities and states to remove financial barriers to choosing careers in teaching. Others provide tuition support or paid fellowships to students considering teaching in a health profession.

Example in Practice: Minnesota Loan Forgiveness Program¹⁷

The State of Minnesota has instituted a loan forgiveness program for students studying to become either allied health or nursing instructors. The program, which is administered through the Minnesota Department of Health Office of Rural Health and Primary Care (ORHPC), requires selected participants to work in a teaching position a minimum of 20 hours per week in a postsecondary allied health or nursing program in Minnesota after graduation. Participants are eligible for up to four years of loan forgiveness, but are required to complete a minimum of three years of service in a postsecondary teaching position. For each year that a participant works in this type of teaching position, the ORHPC will pay a lump sum of approximately \$7,000 directly to the participant. Participants are required to provide annual verification that the funds are applied to their education loans.

Example in Practice: Endodontic Educator Fellowship Award¹⁸

Students generally accrue a fair amount of debt in dental school and look to their future earnings to pay off that debt. The American Dental Education Association is partnering with the American Association of Endodontists Foundation to offer an endodontic educator fellowship award. To be eligible, applicants can either be enrolled in an advanced specialty education program in endodontics or have already completed the specialty program and been accepted into a master's, doctoral, or postdoctoral training program. Award winners receive tuition plus a \$2,500 monthly stipend for living expenses for up to three years. Fellows must commit to teaching full time for at least five years at an accredited dental school following graduation. Twelve fellowships have been granted since the program began in 2000.

¹⁷ A description of the Minnesota Loan Forgiveness Program for Allied Health Care Tech Faculty is available online at www.health.state.mn.us/divs/cfh/orhpc/loan/ahcfac.htm. A description of the loan forgiveness program for nursing faculty is available online at www.health.state.mn.us/divs/cfh/orhpc/loan/nursfac.htm.

¹⁸ A description of the American Association of Endodontists Foundation Endodontic Educator Fellowship is available online at www.aae.org/foundation/grants_awards/eeffa/.

Non-economic Incentives

While it may not be possible for colleges and universities to compete with the salaries offered in clinical settings, offering non-economic incentives may help them recruit and retain qualified faculty.

The Task Force on the Recruitment and Retention of Pharmacy Practice Faculty asserts that to enhance intrinsic job satisfaction faculty need:¹⁹

- A clear understanding of his/her job description and a good match between the faculty member's goals for professional growth and the job description
- A clear understanding of the mission of the college or university and a personal philosophy of practice that is congruent with that mission
- A clear understanding of the promotion and tenure guidelines for the institution
- Assurance that the promotion and tenure process is equitable and reasonable, and that there are appropriate opportunities for advancement
- A reasonable and well-delineated time period for formal socialization into his/her academic niche
- An opportunity to become involved in decision making at the college or university
- A formal reward and recognition system for meritorious on-the-job performance
- Access to a formal faculty development program, which is individualized to the needs of the faculty member

As the last two points suggest, programs to support the professional development of faculty and to recognize outstanding faculty members are important to sustaining high morale among faculty. The programs described below aim to improve morale, reduce faculty burnout, and promote high-quality education for students.

Example in Practice: West Virginia Teaching Scholars Program²⁰

The West Virginia University Health Sciences Center created the Teaching Scholars Program in 2000 to address the desire of faculty to improve their teaching skills and to demonstrate university's investment in current faculty members. It is a two-year program requiring a large commitment on the part of faculty participants. Interested faculty must apply to the program and have the demonstrated support of their immediate supervisor or department head. Cohorts of 8 to 10 faculty members are accepted into the program each year. Approximately 60 faculty members have completed the program to date.

The first year of the program consists of online coursework and weekly one-hour in-person seminars with other faculty from across the health sciences schools within the

¹⁹ Mary Lee, Marie A. Abate, Nancy Fjortoft, Anne Linn, and Michael S. Maddux, Report of the Task Force on the Recruitment and Retention of Pharmacy Practice Faculty, *American Journal of Pharmaceutical Education* (Vol. 59, Winter Supplement 1995).

²⁰ Robert M. D'Alessandri, West Virginia University: Attracting and Retaining Health Sciences Faculty, *Proceedings of the 9th Congress of Health Professions Educators* (Washington, D.C: June 2002) and Memorandum on the Online Teaching Scholars Program (Online, accessed 8/1/07; available: www.hsc.wvu.edu/admin/facultydev/teaching_scholars_program.htm). Information was also obtained through a telephone call with Gwendolyn Marshall, faculty development program manager at West Virginia University Health Sciences Center.

university, during which new teaching techniques and models are discussed. During the second year, scholars are assigned a research project as a way to recoup some of the investment the university has made in them. Some second-year scholars opt to mentor first-year scholars by involving them in the projects. This opportunity for research boosts faculty members' applications for tenure, which requires a certain amount of research.

In 2005, the university began offering a Teaching Scholars Summer Institute for faculty members who are unable to make the time commitment required by the year-long program. The summer institute fulfills the complete first year of the program within one week during the summer. There is a fee, however, for the summer program, whereas the school-year program is free.

Example in Practice: East Carolina University Scholar Teacher Award²¹

Many colleges and universities offer faculty awards. East Carolina University's academic health center gives annual Scholar/Teacher Awards to one faculty member in each of the health disciplines. This financial award is given in recognition of significant contributions to research and scholarship and the integration of these areas into teaching. An annual symposium is held to honor award recipients, during which each award winner shares a brief presentation on the research and/or teaching strategy that led to their award.

Mentoring and Role Modeling

Many schools are finding that students are not likely to enter academia without the influence of a teacher or administrator, so they are providing role models for students to follow as they begin their careers. Some schools are pairing high-performing students with a faculty mentor who will provide career guidance that includes the benefits of teaching.

Example in Practice: Tufts University Student Teacher Program²²

Tufts University School of Dental Medicine's Student Teacher Program allows fourth-year dental students to experience teaching at the university level under the mentorship of dental school faculty. Student teachers assist faculty with instruction in emergency clinic, group practice, and pre-clinical didactic courses. In addition to teaching responsibilities, student teachers gain administrative experience by assisting with interviewing predoctoral candidates; proctoring exams; and conducting infection control audits. The program has three distinct objectives: (1) to impart faculty training to student teachers; (2) to boost the school's human resources; and (3) to evaluate the student teacher's potential for a future position as a dental educator.

Since its inception in 2002, 190 students have participated in the Student Teacher Program. Data are not available on the number of students who have been found to have potential as a dental educator or on the number of students who have gone on to teach. However, evaluations of the program have found that students enjoy the experience and

²¹ Phyllis Horns, Growing and Recruiting Faculty at East Carolina University, *Proceedings of the 9th Congress of Health Professions Educators* (Washington, D.C: June 2002).

²² *Best Practices in Dental Education 2004* (Washington, D.C: American Dental Education Association, 2004). Program data was obtained from Jennifer Littke, director, Office of Educational Measurement, Tufts University School of Dental Medicine, July 2007.

believe their “student perspective” enhanced their ability to provide instruction to their peers. Students who are taught by the student teachers also rate the program overwhelmingly positively and say they find the instruction from their peers helpful.

Example in Practice: East Carolina University School of Nursing²³

In 1999, the nursing school at East Carolina University began pairing faculty mentors with students in the top 20 percent of the undergraduate program’s graduating class. The mentors met regularly with the students to discuss teaching as a legitimate career option. The students also had the opportunity to shadow their mentors in the classroom, gaining first-hand teaching experience. While the mentors encouraged the students to gain clinical work experience upon graduation, they also encouraged them to take a graduate class or two to maintain ties with academia. The hope was that students would ultimately complete a master’s degree or doctorate and teach future nursing students.

The program was relatively small. Over a three-year period, approximately 20 students received mentoring. However, virtually all of them have become faculty at either a four-year university or community college. The success of the program can be attributed to pairing students with faculty members who are passionate about teaching. The mentoring program has since been discontinued, not due to lack of success, but due to lack of a champion for the program.²⁴

Partnerships between Universities and Health Care Institutions

Universities and health care institutions can both benefit from clinical faculty. Recognition of this mutual benefit has led some health care institutions to directly fund the hiring of clinical faculty members, who then have a joint placement in both the school and clinical facility.

Example in Practice: Northwestern Michigan College and Munson Medical Center²⁵

Northwestern Michigan College (NMC) and Munson Medical Center have formed an agreement whereby staff nurses at Munson Medical Center become adjunct faculty providing clinical instruction to NMC nursing students. The staff nurses at Munson Medical Center have a joint appointment to both the medical center and NMC and can obtain release hours from the medical center to teach at NMC.

Munson Medical Center staff nurses must work with their managers to identify an agreed-upon number of release hours and determine a release time schedule. The staff nurse must also interview for and secure the adjunct faculty position and notify the director of nursing programs at NMC of the release hours she has secured to teach the course.

²³ Horns, Growing and Recruiting.

²⁴ The information about the size of the program and its success was obtained through a telephone conversation with Phyllis Horns, former dean of the nursing program at ECU.

²⁵ MMC–NMC Joint Appointment Process, PowerPoint presentation given by Jean Rokos, Northwestern Michigan College, and Bill Brundage, Munson Medical Center, March 2007.

At that point, a form is sent from the NMC director of nursing programs to the Munson Medical Center manager to verify the course to be taught by the instructor, the dates the instructor will be teaching, the number of release hours, and the salary amount for the course. During a release, adjunct clinical instructors continue to receive their full salary from the medical center; however, NMC reimburses Munson for the hours the instructors spend teaching. Each course is associated with a specific salary amount. If that salary is higher than the amount reimbursed to Munson, NMC pays the difference directly to the clinical instructor.

This agreement has kept NMC from experiencing a shortage of clinical faculty and it provides adjunct faculty an opportunity to develop new skills while preserving their full-time employment at the medical center.

*Example in Practice: University of Massachusetts–Amherst School of Nursing*²⁶

In 2001, the University of Massachusetts–Amherst School of Nursing was facing the prospect of downsizing its enrollment from 64 students to 48 students due to a lack of faculty. In the summer of 2001, the school initiated a partnership with Baystate Medical Center (BMC) in Springfield, Massachusetts, which provided enough funding for the nursing school to hire two full-time faculty members and one half-time faculty member. These faculty members have a joint placement with the UMass Amherst School of Nursing and BMC. The faculty members enable the school to maintain its enrollment at 64 students by providing clinical teaching for nursing students. The faculty support BMC by serving as placement coordinators for UMass Amherst nursing students and working with BMC nursing staff to develop their skills as clinical educators. BMC has also benefited from more UMass nursing graduates taking positions with BMC upon graduation. The school of nursing and BMC also jointly created an internship program during which UMass Amherst nursing students work full-time at BMC during the summer and one shift a week during the school year.

In the fall of 2001, UMass Amherst School of Nursing embarked on a similar partnership with Cooley Dickinson Hospital (CDH) in Northampton, Massachusetts, which provided funding to enable the school to hire one full-time faculty member and one half-time faculty member. The full-time faculty member assists CDH with projects designed to create a culture of professional nursing and with the development of recruitment and retention strategies for its nurses. The faculty members also coordinate the placement of UMass Amherst nursing students at CDH and provide clinical teaching for these students. The school of nursing worked with CDH to replicate the internship program in place at BMC.

CENTRALIZED CLINICAL PLACEMENT

In a traditional clinical placement process, schools of health professions work directly with clinical sites to arrange clinical placements independent of the needs of other schools. The process is generally inefficient in its use of human and clinical resources.

²⁶ AACN Issue Bulletin: Using Strategic Partnerships to Expand Nursing Education Programs, October 2002 (Online, accessed 8/1/07; available: www.aacn.nche.edu/Publications/issues/PartnershipProfiles.htm).

School faculty spend a lot of time contacting the clinical sites in search of placement opportunities, and the clinical staff who accept students for placement have to spend time arranging placements with faculty from multiple schools. In addition, without a coordinated system, it is likely that some placement opportunities will go unused.

Increasing competition for clinical placements coupled with the need for more clinical placement sites has led to the implementation of centralized clinical placement models. Centralized clinical placement provides an efficient way for schools and clinical sites to collaborate in the placement process. Some common characteristics of these models, identified by the Massachusetts Board of Higher Education, include the following:²⁷

- Systems are Web based.
- A system coordinator assists participating groups with maintaining the site and conducting group meetings.
- A school proposes or requests a clinical placement at a specific health care agency; the health care agency accepts or rejects that proposal or request.
- Participant groups meet on a scheduled basis to identify needs, gaps, and problems and to engage in joint problem solving.
- Each group has established a set of operating principles that include:
 - Collaborative efforts to place students and expand the number of clinical sites
 - Specified decision-making processes
 - Specified conflict-resolution processes
 - Specified processes to meet regulatory requirements
 - Contractual arrangements between the school of nursing and health care agency
 - Establishment of a “participant group”—participants in the centralized clinical placement groups may request or accept clinical placements from those in their regional group rather than institutions outside of the centralized clinical placement group

The funding of these centralized clinical placement systems varies. Some groups have instituted an annual schedule of user fees; in some cases an institutional partner houses and runs the system as part of its operations; and other systems are supported by grants.

Example in Practice: Oregon StudentMAX Connection²⁸

One successful model is Oregon and Southwest Washington Regional Nursing Clinical Placement Consortium, known as the *StudentMAX Connection* (SMC). Previously called the Regional Nursing Clinical Placement Workgroup, the SMC formed in the fall of 2003 with a mission “to improve the efficacy and capacity of nursing education through innovative, collaborative, centralized coordination of regional student clinical placements.”

²⁷ *Centralized Clinical Placements for Nursing Students: A Review of Existing Models and Considerations for Massachusetts*, prepared for the Massachusetts Board of Higher Education by Tobin Communications in association with Farley Associates Inc. (White Plains, Maryland: June 2005).

²⁸ Ibid. Information about the RNCPW and StudentMAX Connection clinical placement system was also obtained from Carol Mitchell, Regional Clinical Nurse Coordinator; July 2007.

Developing the System

The SMC focused its initial efforts on the metropolitan Portland, southwest Washington, and Willamette Valley region, the most populous area in Oregon. The region includes the cities extending north from Salem, Oregon to Longview, Washington. In its first year (2003–2004), the SMC developed a database of nursing student clinical placements from 2002–2003 to identify the regional capacity for acute inpatient student experiences. It used these placements as a baseline for placements in the 2003–2004 school year and worked with partners to negotiate requests for additional placements. It also created a public website, called StudentMAX®, to house the clinical placements database. Clinical and educational partners can use the website to post or request a placement opportunity, to share documents, and to link to each other's websites.

In its second year (2004–2005), the SMC hired a half-time clinical placement coordinator to manage the website and placement system. At that time the SMC began to identify hospital units that had capacity to increase clinical placements and to share these opportunities with member schools. It also began to look more closely at matching course objectives with clinical experiences, including working with community partners to explore the potential for non-hospital clinical placements to meet course objectives.

Partners and Funding

To date, 100 percent of hospitals and schools of nursing in the region's catchment area are participating in the clinical placement system. Other types of facilities, including home health agencies, hospice, county health departments, clinics, and long-term care facilities are also beginning to participate. The system, which cost \$30,000 to build and has an annual operating budget of approximately \$56,000, was initially funded by a grant. To hire the coordinator, the SMC implemented a schedule of user fees: schools of nursing paid \$14 per student FTE headcount and health care facilities paid \$14 per the average number of patient beds filled per day during the year. Now, however, the clinical placement system is completely supported by the licensing fees charged to other regions and states that have purchased the rights to use StudentMAX® to implement their own clinical placement systems. To date, organizations in 12 states and regions have purchased the rights to use StudentMAX®. With the marketing and support needs of the new licensees, the coordinator position has been expanded to program director post.

How It Works

The SMC clinical placement process is based on a set of operating guidelines:

- All members have access to clinical placement opportunities.
- As new members join the SMC, existing placements/relationships remain intact.
- Placements are required to be made through StudentMAX®; informal arrangements for placements are not allowed.
- Hospitals must honor the commitments they make, and must find a suitable replacement opportunity if they choose to deny a previously negotiated placement.
- Student/faculty drive time to clinical placement sites can be up to an hour.

The steps involved in identifying and meeting clinical placement needs are as follows:

- Nursing school faculty identify their clinical placement needs and post them to StudentMAX® in early spring.
- Health care facilities identify their available clinical placement slots and post these to StudentMAX®.
- The program director identifies conflicts based on the needs of schools and the availability of placement opportunities.
- A meeting is held in May to resolve scheduling conflicts.
- Hospitals receive official requests for placements from schools of nursing in June and then send out notices of approval or denial of requests.

The StudentMAX® system has the capacity to add other regions of the state, and the program director is currently exploring opportunities for this type of expansion.

Example in Practice: Alliance for Clinical Education Systems Clinical Placement (ACE-PLACE) in Southeast Michigan

ACE-PLACE, built on Oregon's StudentMAX platform, will provide health care systems and educational institutions in southeast Michigan an automated clinical placement system that will serve as a clearinghouse for all clinical placements for students in the region. Partners in the development of ACE-PLACE include six health systems, ten educational institutions, the Michigan Health Council, the Michigan Health and Hospital Association, and the Michigan Department of Community Health. Unlike most—if not all—other centralized clinical placement systems, ACE-PLACE will manage placements for several health professions, not just nursing.

Initial funding for the system has come from the six health systems, federal funds passed through Michigan's Office of the Chief Nurse Executive, and the Blue Cross Blue Shield of Michigan Foundation. Continuation funding will come from an annual participation fee for each education program and health care provider; the fee will vary depending on the size of the program and/or institution.

Within a few years, ACE-PLACE will be operated by the Michigan Health Council on behalf of the providers and educational institutions throughout Michigan. The council expects the system to be up and running in southeast Michigan in March 2008 to support planning clinical placements for fall 2008. The council plans to expand the system statewide by early 2009 for clinical placements beginning the following fall.

***Example in Practice: Clinical Placement Consortium in West Michigan*²⁹**

The Clinical Placement Consortium (CPC) provides an online forum for coordinating clinical placements for nursing students from seven schools representing ten nursing programs and 51 clinical agencies representing 165 clinical units in western Michigan. CPC member representatives include directors of the seven schools of nursing, educational liaisons from major health care agencies, information technology specialists, and an administrative assistant.

²⁹ Kay Setter Kline and Janice Hodges, A Rational Approach to Solving the Problem of Competition for Undergraduate Clinical Sites, *Nursing Education Perspectives* 27 (2006): 80–83.

The CPC uses a Web-based system called Blackboard to support the clinical placement process. As with the Oregon system, CPC member schools make requests for clinical placement slots, which clinical agencies can then accept or reject. Requests are sent through the Blackboard e-mail system. Once a request has been accepted, the administrative assistant in charge of maintaining the system posts the change to the schedule. CPC member representatives meet three times a year to finalize clinical requests for the coming semester. At that time, any conflicting requests can be resolved between interested parties.

Challenges that have arisen since the system has been in place include standardizing nomenclature for clinical units. For example, clinical sites may have used the terms “OB,” “maternity,” and “mother-baby” to refer to the same type of unit. Creating common names for units helps everyone quickly and easily find the placements that best meet the needs of the students.

Changes within schools and within health care agencies can also present challenges. If schools expand their nursing programs, revise their curricula, or hire faculty who require units in a different specialty area, they may need additional clinical placement slots that are also sought by other schools. When health care agencies reorganize patient care, merge, or implement a new model of care delivery, units can be closed, opened, or otherwise changed. The Blackboard interface was designed as a dynamic system so that it can meet these challenges. Nonetheless, additional negotiation between members may be necessary to be certain the needs of everyone involved are met.

Although these challenges exist, the Clinical Placement Consortium reduces barriers to communication. A notable advantage of the system is the fact that everyone is notified of changes at the same time using the Blackboard e-mail system. Because of this, responses to placement requests and changes in the system usually happen quickly. CPC partners have also noted an increase in hospitals’ understanding of schools’ objectives, and note that schools have broadened their perspective on possible clinical sites.

The CPC Blackboard system is hosted by Grand Valley State University in Allendale, Michigan. The administrative assistant’s time (which averages about one-half day per week) and the hosting of the system are provided in-kind by the university.

Example in Practice: East Central Michigan Regional Skills Alliance for Health Care³⁰

In 2005, the East Central Michigan Regional Skills Alliance (RSA) for Health Care was formed by the Saginaw-Midland-Bay Michigan Works! The RSA identified a need for coordinating the clinical placement of nurses in the region and, after researching other clinical placement models, developed an RFP inviting information technology professionals to create a system that met the needs of the region’s health care and education partners.

³⁰ A description of the East Central Michigan RSA Internet-Based System for Clinical Placement can be found online at <http://www.clinicalplacement.org/present/viewer/presentation.php>. Information was also obtained from a telephone conversation with Leslie Roth, project manager for the East Central Michigan RSA; July 2007.

The East Central Michigan RSA's system is similar to that of other regions and states in that it is Internet-based and clinical placement information can be updated and shared in real time. As in similar programs, schools request clinical placements and health care facilities accept or deny the requests. Priority is also generally given to long-standing relationships between schools and facilities. However, unlike programs in other regions and states, the East Central Michigan RSA does not have a coordinator in place to enter and track clinical placements. Instead, once clinical facilities approve a placement, a designated person at the facility enters it into the system. The RSA facilitates regular meetings of partners in the clinical placement process to discuss enhancements to the database and other approaches to increasing clinical placement opportunities.

Currently the system is used by more than 20 clinical facilities and nine nursing programs in 20 counties. The system was developed so that additional sites or even regions can use it without being a part of the regional skills alliance and can modify how placements are requested and finalized to meet their group's specific needs. The system is in its second year of operation, and data from two of the larger hospitals participating in the system indicate a 45 percent increase in nursing clinical placements from the first year to the second.

STANDARDIZED CLINICAL PLACEMENT REQUIREMENTS

Students who apply for clinical placements must meet numerous requirements before they can be considered for placement. These include verification of immunizations, criminal background check, and training related to infection control, fire safety, hazardous chemicals, and Health Insurance Portability and Affordability Act (HIPAA) regulations. Often, students have to complete these trainings and fill out a new form each time they start a new clinical rotation.

As partnerships are being formed to streamline and coordinate the clinical placement process, some of these groups are taking the opportunity to coordinate and standardize the requirements students need to meet to obtain a clinical placement. The partnering schools and clinical placement sites identify the overlapping requirements and look for ways in which the training modules can be standardized so that students need not complete a different training on HIPAA regulations, for example, each time they begin a new placement. The end product, dubbed a "clinical passport" by some, is a form that students use to track their completion of an agreed-upon set of common clinical placement requirements.

Example in Practice: Tennessee Clinical Placement System³¹

The Tennessee Center for Nursing is one of 12 groups to have purchased a license to use Oregon's StudentMAX software program to implement a clinical placement system. As the Tennessee Clinical Placement Partners (TCPP) came together with the Tennessee Center for Nursing to implement the Tennessee Clinical Placement System (TCPS), they

³¹ A description of the Tennessee Clinical Placement Partnership is available online at <http://tcn-tcps.org>. Information about the Tennessee Clinical Placement System was also obtained from a telephone conversation with Pam Taylor, TCPS program director.

turned their attention to reducing the amount of paperwork and class time required for students to begin clinical placements.

The TCPP identified clinical placement requirements and clinical placement orientation information that were common across clinical sites. The TCPP and Tennessee Center for Nursing worked with an independent consultant to create online training modules that would meet the general requirements of all clinical sites. Planning discussions related to content took place over a six-month period within the context of planning for implementing the clinical placement system. The resulting “passport” consists of a set of standardized requirements, including immunizations, criminal background check, and CPR certification; online general orientation modules; and online facility-specific orientation modules.

The standardized general orientation includes training in the following areas:

- Emergency preparedness
- Bloodborne pathogens and infection control
- Confidentiality and compliance (includes HIPAA regulations and ethics)
- Dealing with diverse populations
- Safety (includes workplace violence and National Patient Safety Goals)

Facility-specific orientation content, such as emergency codes or specific policies and practices relating to patient care, can also be completed online. Schools are responsible for keeping track of student completion of the training modules in addition to immunizations, criminal background checks, and CPR certification.

The Tennessee Clinical Placement System and Clinical Passports are currently being used only by the Middle Tennessee region. The West Tennessee and East Tennessee regions will begin using the system and online orientation by the end of 2007, and the Southeast Tennessee and Northeast Tennessee regions are likely to begin using the system and online orientation in 2008.

Example in Practice: Alliance for Clinical Education Systems Clinical Passport (ACE-PASS) in Southeast Michigan

The partners involved in the development of the ACE-PLACE clinical placement system are also developing a clinical “passport” system, ACE-PASS, that will provide students with a clinical passport indicating that they have met certain requirements prior to the start of their clinical rotation. The passport will be good for one year and will be accepted by all participating clinical training sites in southeast Michigan as evidence of having met their requirements.

When it is rolled out, ACE-PASS will include certification of knowledge of HIPAA regulations, Occupational Safety and Health Administration (OSHA) regulations, and standard precautions (e.g., bloodborne pathogens). Modules will be added based on the needs of providers and educational programs.

Initial funding for ACE-PASS has come from the same sources as those for the ACE-PLACE clinical placement system. Continuation funding will come from an annual fee of

\$50 for each student who has a clinical rotation in that year and an annual fee for participating educational and health care institutions.

ACE-PASS will be implemented in southeast Michigan in June 2008 and expanded throughout the rest of the state by January 2009. Like ACE-PLACE, ACE-PASS will be operated by the Michigan Health Council on behalf of providers and educational institutions throughout Michigan.

DEDICATED EDUCATION UNITS

The nursing shortage has led to a growing demand on nursing schools to increase enrollments and a deepening need for health care institutions to retain their experienced nurses. The dedicated education unit (DEU) is designed to meet both of these needs. DEUs, originally developed in Australia, are partnerships between schools of nursing and clinical sites in which students are taught by nurse-clinicians who are in turn supported by university faculty members. A central tenet of the concept is that nurse-clinicians play a vital role in both the education and development of the professional character of student nurses. The DEUs are designed to increase clinical education capacity while providing a challenging, yet rewarding, experience for staff nurses at clinical sites.

Staff nurses and university faculty roles in the DEU model differ from those in the traditional clinical education model. Staff nurses are responsible for the clinical education of student nurses and are designated as clinical instructors (CIs). Clinical instructors' credentials are submitted to the State Board of Nursing by the school of nursing, thus giving them the title of adjunct clinical faculty at the university. University faculty, now responsible for supporting clinical instructors rather than focusing on students, are designated as clinical faculty coordinators (CFCs). CIs and CFCs work together closely to ensure that students "gain the clinical knowledge, skills, and judgment needed for entry into professional nursing practice."³²

Example in Practice: University of Portland School of Nursing³³

The University of Portland School of Nursing and three clinical partners, Providence St. Vincent Medical Center, Providence Portland Medical Center, and Portland Veterans Affairs Medical Center, have joined together to create DEUs at each of the three clinical sites. Students and nurses have given favorable evaluations of their experience and clinical placement opportunities increased dramatically through the implementation of the model. Prior to the implementation of DEUs in 2002, 14 medical-surgical units were able to offer 227 clinical placements for students. In 2006, 333 students received clinical training in six DEUs. This is in addition to students who received clinical training through the traditional model. The University of Portland was able to double enrollment in its nursing program over a period of three years.

³² Susan Randles Moscato, Judith Miller, Karen Logsdon, Stephen Weinberg, and Lori Chorpenning, Dedicated Education Unit: An innovative Clinical Partner Education Model, *Nursing Outlook* 55 (2007):31–37.

³³ Ibid.

Building Partnerships at All Levels

To implement the DEU model, conversations began between the dean of the school of nursing and nurse executives at each of the clinical sites. The outcome of these conversations was the appointment of a senior university faculty member and a health system director in each facility to coordinate the project.

As the DEU planning process began, Providence St. Vincent Medical Center and Providence Portland Medical Center were each building new care units. These units were chosen as the initial setting for the DEUs in those facilities. When filling the nursing positions in the new units, project coordinators advertised the need for nurses to serve as clinical instructors to teach students in a dedicated education unit. Unit nurse managers were charged with selecting applicants to staff the DEUs, giving preference to BSN-prepared nurses. Project coordinators then worked closely with the nurse managers to develop a shared vision and identify the best way to implement the model in the units. The project coordinators and nurse managers also agreed on the following features of the DEUs:

- Exclusive use of the DEU by one school of nursing
- Use of staff nurses who want to teach as clinical instructors and are prepared for their teaching role through collaborative staff development activities
- Continuity of students with the staff nurse clinical instructor over the length of the clinical rotation, usually six weeks
- Use of faculty expertise as educators to support the development and comfort of the staff nurse as the clinical instructor
- Commitment by all parties to work together to build an optimal practice environment for students and staff that is consistent with the unit's goal for its patients and staff

Training and Support for All Involved

A DEU orientation workshop for clinical instructors, charge nurses, and nurse managers is held three times a year on the university campus with the dean, associate dean, and clinical faculty coordinators. The workshop orients the clinical nurses to the school's mission, philosophy, and curriculum and offers instruction in clinical teaching, especially within the DEU model. Setting up the DEU as an "optimal learning environment" is emphasized throughout the training and ongoing interactions with the clinical instructors. This is what separates the DEU from the nurse preceptor concept. In the DEU, student learning is the focus and nurse managers reduce patient load for CIs at the onset of each clinical rotation to enable them to devote time to acclimate new students to the unit. Nurse preceptors are generally not given special training in clinical instruction and are expected to work with students within their existing patient load. Since the DEU differs from traditional clinical instruction, students are also provided an orientation to the DEU concept at the beginning of each clinical course.

CLINICAL SIMULATION IN TRAINING

Clinical simulation has become more widespread as a strategy to assure that students are learning the skills they need. The types of simulation used within the health professions range from "inert anatomical models to standardized patients [patient actors] to high-

technology computer-driven systems.”³⁴ High-fidelity human patient simulators include computerized mannequins that breathe, have bowel sounds, lung sounds, pulses, and a heart beat, and are designed to respond to treatment just like humans. Some schools have built centers that simulate an actual clinic or patient care unit in which students can learn and practice treating these lifelike mannequins.

One of the widely recognized advantages of clinical simulation is that students have the opportunity to practice their skills in a lifelike situation without the possibility of causing harm to a real person.³⁵ The simulators also allow students the opportunity for repeated practice of a clinical skill.³⁶ Evidence is inconclusive about the transferability of proficiency in a simulated setting to a real clinical setting. And literature on the effectiveness of human patient simulators as a training tool emphasize that simulators are meant as a complement to clinical training, not a substitute.³⁷ Nevertheless, students tend to give high ratings to clinical simulations and report greater confidence and ability to follow instruction using human patient simulators.³⁸ It is possible that these learning advantages would transfer to actual clinical experience, which may reduce the teaching burden for clinical instructors and preceptors and improve patient care in facilities where students go through clinical training.

In a Best Evidence Medical Education review, Issenberg et al. offer the following features and uses of high-fidelity medical simulations that lead to effective learning.³⁹

- **Educational feedback:** Feedback regarding a student’s performance with a clinical simulator is the most important feature of simulation-based educational experiences. Feedback can be provided in real time by the simulator and/or during and after the simulation by the instructor. Sessions can also be videotaped so students can review their own performance.
- **Repetitive practice:** Outcomes of repeated practice include faster skill acquisition than exposure to routine ward work. The researchers also noted transfer of skilled behavior from simulator settings to patient care settings.
- **Curriculum integration:** The evidence shows that students are more likely to acquire the knowledge and skills being taught with a simulator if it supports what they are learning in the classroom. Integrating simulation into the educational curriculum is an essential feature to the successful learning of the skills being practiced.

³⁴ William McGaghie, S. Barry Issenberg, and Emil R. Petrusa, Editorial: Simulation – Savior or Satan? A Rebuttal, *Advances in Health Sciences Education* 8 (2003): 97–103.

³⁵ Carol E. Feingold, Margaret Calaluce, and Michael A. Kallen, Computerized patient model and simulated clinical experiences: evaluation with baccalaureate nursing students, *Journal of Nursing Education* 43, No. 4 (2004): 156–163.

³⁶ S. Barry Issenberg, William McGaghie, Emil R. Petrusa, David Lee Gordon, and Ross J. Salese, Features and uses of high-fidelity medical simulations that lead to effective learning: a BEME systematic review, *Medical Teacher* 27, No. 1 (2005): 10–28.

³⁷ Ibid.

³⁸ James A. Gordon, The Human Patient Simulator: Acceptance and Efficacy as a Teaching Tool for Students, *Academic Medicine* 75, No. 5 (2000): 522.

³⁹ Issenberg et al., Features and uses, 10–28.

- **Range of difficulty:** Many simulators can provide learning scenarios ranging from simple to complex. Studies of simulation have found that students benefit from a broad range of levels of difficulty. This can also accommodate the needs of learners at various skill levels.
- **Multiple learning strategies:** According to Issenberg et al., “The rule of thumb is that one’s educational tools should match one’s educational goals. High-fidelity medical simulations that are adaptable to several learning strategies are more likely to fulfill this aim.”
- **Capture clinical variation:** In addition to having a range of difficulty levels, high-fidelity medical simulations should be able to capture a broad range of patient problems and conditions.
- **Controlled environment:** In contrast to a true patient-care setting, simulators offer a controlled environment free from distractions, which “allows instructors and learners to focus on ‘teachable moments’ without distraction and take full advantage of learning opportunities.”
- **Individualized learning:** Simulators that are flexible in range of difficulty and patient conditions offer better opportunities for students to practice skills they are most in need of mastering.
- **Defined outcomes:** The use of high-fidelity medical simulation is most effective when it is accompanied by “clearly defined outcomes or benchmarks for learner achievement.”
- **Simulator validity:** A high degree of realism or fidelity is an essential feature for learning clinical skills through simulation-based medical education.

The primary disadvantage to clinical simulation can be its cost. One article cites a price tag of at least \$50,000 for a human patient simulator and support equipment, but cautions that this is a low estimate since schools are likely to have more than one mannequin and may also need “cameras and recording equipment [and] a dedicated area in which to establish the equipment.”⁴⁰ Costs can also vary widely with the complexity of the simulator. Other disadvantages to human patient simulation include the amount of time required to “write scenarios, prepare the training environment, enact the scenario, and [evaluate student performance].”⁴¹ Another concern that some have had with human patient simulation is that it may reduce student sensitivity to real patients in the clinical environment. This has not been borne out by studies, however.⁴²

Example in Practice: Georgetown University School of Nursing and Health Studies Nurse Anesthesia Program⁴³

Instructors at the Georgetown University School of Nursing and Health Studies Nurse Anesthesia Program are making innovative use of human patient simulators as a remedial

⁴⁰ Marilyn Hravnak, Michael Beach, and Patricia Tuite, Simulator Technology as a Tool for Education in Cardiac Care, *Journal of Cardiovascular Nursing* 22, No. 1 (2007):16–24.

⁴¹ Ibid.

⁴² S. Barry Issenberg, William C. McGaghie, et al., Simulation Technology for Health Care Professional Skills Training and Assessment, *Journal of the American Medical Association* 282, No. 9 (1999): 861–66.

⁴³ Leah M. Haskvitz and Elizabeth C. Koop, Students struggling in clinical? A new role for the patient simulator, *Journal of Nursing Education* 42, No. 4 (2004): 181–84.

tool for students who are struggling with their clinical training. The goal of the remediation strategy implemented at Georgetown is to “meet the needs of students and clinical preceptors while preserving patient safety.” As noted above, simulation offers students the opportunity to practice skills in a safe environment. In this setting, Georgetown faculty have found, students are able to regain confidence in their abilities.

Clinical instructors and students identify learning objectives for students to meet upon returning to clinical sites. Preceptors are in regular contact with clinical instructors to provide feedback on the student’s ability to perform the skill that had been problematic. Evaluation of the remediation program has found “improved performance, reduced anxiety, and increased self-reported confidence levels among students using this method.”⁴⁴

⁴⁴ Ibid.

Assessing Regional Health Workforce Supply and Demand

National and state-specific studies have been conducted that predict future shortages in the health professions. The studies estimate future demand for health care services based on population demographics and other statistics and then estimate the future supply of health professionals available to meet that demand. When the estimated supply of health professionals falls short of the demand for services, a shortage is predicted. The fact that these studies have a national or state focus severely limits their value to any single employer or regionally-based group of employers. What is true for the nation or state is not necessarily true for a more limited target.

As regions look for ways to meet the demand for health care services, analysis of region-specific health workforce supply and demand will enable them to focus their efforts. Learning more about what is contributing to supply issues and which professions are most in demand will lead to a more robust approach to meeting the needs of both the public and health care professionals.

Employers in the health care sector have an idea of how many nurses, radiologic technologists, pharmacists, and other types of employees they need to provide their current level of service and how many they would need if they were to increase or decrease services. Employment vacancy rates and the future departure intentions of current employees, in addition to estimated demand for services, are what drive the demand for health professionals among health care employers. When this information is available for an entire region, employers can assess whether they are experiencing patterns of vacancy rates and departure intentions similar to others in the region or whether their situation is unique.

The efforts described below focus on identifying demand for health care professionals among groups of health care providers representing geographic regions within states.

Example in Practice: Michigan Health and Hospital Association

The Michigan Health and Hospital Association (MHA) Service Corporation offers a Turnover and Vacancy Rate Report service to MHA members. Member organizations with a username and password voluntarily enter quarterly data on the total number of full-time and part-time employees, contingent/on-call employees, and voluntary and involuntary separations within each group. The data is collected in the aggregate and for each of 12 health care occupations, including nursing, radiology technology, pharmacy, respiratory therapy, medical technology, and radiation therapy. Participating employers can view and print reports of turnover and vacancy rates comparing their organization to statewide or regional rates. They can also compare their rates to “peer” groups (by facility size or region) or employers with similar numbers of employees. The accuracy of the data and comparisons is dependent on the extent to which member organizations provide the information.

Example in Practice: North Central Council of the Michigan Health and Hospital Association

The North Central Council of the Michigan Health and Hospital Association (NCCMHA) comprises 13 rural hospitals in the northern 21-county region of Michigan's Lower Peninsula. The council surveys its member hospitals annually to find out how many vacancies each has currently and how many positions each expects to need to fill in less than a year, one to five years, and six to ten years. The hospitals provide this data for 19 job classifications, including registered nurses, pharmacists, lab technologists, physical and occupational therapy assistants, radiologic technicians, and respiratory therapists. While the hospitals do not survey their employees directly about their retirement horizon or intention to leave their current position, they use available data on the age of their employees, past employee turnover and vacancy rates, and estimated growth in demand for services to project the need for new employees in each classification.

Example in Practice: Southeast Michigan Demand Study

Watson Wyatt Worldwide conducted a study of the demand for and supply of health care workers in southeast Michigan in 2006. Watson Wyatt used demographic and turnover data from health care employers through June 2005 to project hiring needs and aging of the workforce through 2012 (demand), and gathered historical and current enrollment, attrition, and graduation data from health professional schools within the southeast Michigan area (supply).

The study found that southeast Michigan has an aging health care workforce and employers in the area are experiencing high first-year turnover. The region is also facing an imbalance between demand and supply for several health professions, such as physical therapy and pharmacy. Watson Wyatt concludes that student attrition, limited interest and exposure to health professions, limited availability of clinical training sites, and a lack of qualified educators are factors limiting the supply of health professionals in southeast Michigan. At the same time, expansion and growth of the health care delivery system, an aging population and aging workforce, and workforce migration are increasing the demand for health professionals in the region.

This study, conducted specifically for the southeast Michigan health care labor market, has enabled policymakers in the region to identify critical focus areas as well as strategies for addressing these issues. One such strategy was the convening of a symposium attended by providers, educational institutions, and legislative staff in October 2006. This symposium led to the sponsorship of the ACE PASS and ACE PLACE systems by health care institutions in southeast Michigan.

Example in Practice: Fox Valley Health Care Alliance

The Fox Valley Health Care Alliance (FVHCA) in Wisconsin recently conducted a comprehensive survey of the health care workforce in its seven-county region. The survey assessed the plans of current health care employees to either retire or leave the health care field for another reason, as well as the factors affecting their decision. Approximately 8,000 of 13,000 employees responded to the survey, which was conducted online. The human resource (HR) department of each of the health care facilities released to the FVHCA the e-mail address of all of their employees, enabling

the survey to be distributed online. The FVHCA charged each facility \$1 for each survey they had to send through the mail, so HR departments were motivated to collect e-mail addresses from employees. Participating employers each received a summary of results based on the responses of their employees, disaggregated by age, gender, specialty area, job function, tenure, and employment status.

A second survey conducted by the FVHCA was designed to collect data from the human resources department of each of the participating employers to assess the current number of filled and vacant positions in seven occupational clusters, including physicians, nurses, pharmacists, physical and occupational therapists, imaging, allied health, and a miscellaneous cluster. The HR staff were also asked to provide the age ranges of their current employees and to report any anticipated changes to staffing levels over the next five years. Taken together, the employee survey results and human resource data will provide a comprehensive picture of the health care workforce needs of the region for the next five years, which will focus the workforce development efforts of the FVHCA.

Example in Practice: Michigan Center for Nursing Surveys of Licensed Nurses

In an effort to gain a better understanding of the supply of nurses in Michigan, the Michigan Center for Nursing has surveyed licensed nurses each year since 2004. The survey is used to collect data on nurses' employment status, geographic distribution, age, plans to continue practicing, work setting, practice area, education, gender, and race/ethnicity background. The survey also includes questions related to nurses' decisions to leave a position in nursing and the factors that contribute to these decisions. Surveys are mailed to nurses along with their license renewal application, so about half of all licensed nurses are surveyed each year. Because nurses are asked to provide the Zip Codes of their residence and primary place of employment, robust data are available regarding the supply of nurses not only throughout the state, but also in various regions of the state. The Michigan Center for Nursing has also conducted a survey of nursing education programs in Michigan to assess the capacity of programs across the state.

Conclusion

With demand for health care services projected to increase substantially in the near future with the aging of the baby boomer generation, the supply of the health care workforce has received increasing attention. While supply in several professions has increased in recent years, it appears that demand for services will outpace that supply.

Several promising practices for increasing the supply of professionals throughout the health care workforce have been presented in the body of this report. Potential strategies include:

- Increasing interest among adolescents in the health care field and the speed with which they are able to enter the workforce through early and middle colleges
- Promoting and accelerating training opportunities for workers displaced by layoffs in the auto and other industries
- Identifying and fostering potential among current students in the health professions to take on faculty positions
- Responding to the needs of current faculty members in the health professions to increase their job satisfaction
- Sharing resources among health care and educational institutions
- Coordinating the placement of students into clinical training opportunities
- Increasing student readiness for clinical training with simulation-based training

In addition, states and regions should work together to identify and assess their specific health care workforce needs. This can involve surveying health care employers and employees, projecting demand for services, and gathering graduation and other data from schools in the state or region.

No single strategy is likely to resolve the shortages; however, those included in this report, and certainly others, should be explored by policymakers, employers, and educators alike.